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**Analysis Report of Mathematical Proficiency Data**

**INTRODUCTION**

Following is an analysis of data provided by results of the 2007 through 2011 assessments of mathematical proficiency administered to all 6th-, 7th-, and 8th-grade students at M.S. 217. The aggregated data is represented by all student scale scores of the mathematics assessment of 2011. That data has been disaggregated for closer inspection. A model for Data-Driven Dialogue requires four steps for effectively utilizing data to drive discussions and assist in drawing accurate and usable information from said data. In that regard, a similar process has been implemented in my analysis of the 2011 Mathematics Proficiency and scale scores data.

**DATA-DRIVEN ANALYSIS**

Phase 1, the prediction phase of data analysis, was utilized to make predictions and pose pertinent questions about the data to be examined. In this case, the crucial questions driving the examination of the math scale scores for 2011 are: In what areas does the data show a need for improvement? In what areas are strengths most evident? And, how can the data be used to develop an improvement plan?

Phase 2 requires the visualization of data. This enables the data to become more accessible for analysis and comparison. Visualization of the data is not possible at this time.

Phase 3 requires an analysis of the data, to follow. The mathematics scale scores data has been examined for patterns and trends. In addition, an analysis of the disaggregated data has allowed scrutiny of scale scores for anomalies.

Phase 4, drawing inferences and tentative conclusions, allows for the development of a forward-looking plan for improvement based on concrete evidence in data of weakness and strength areas.

**ANALYSIS OF 2011 NYS MATHEMATICS EXAMINATION RESULTS**

**Performance Levels**

Examination of the data reveals that the largest overall percentage of grade 6 students performed at Level 2 with 37% placing there. The Grade 7 NYS Math Exam 2011 Performance Level data, however, revealed the majority of students at M.S. 217, 33%, performing at a Level 3. Level 4 achievement was reached by 27% of M.S. 217 seventh grade students, an increase of 7% over last year’s results. Lastly, Grade 8 NYS Math Exam 2010 Performance Level data again revealed majority student groups at levels 2 and 3, 41% and 40%, respectively, level 3 increasing by 8%. Level 4 performance in Grade 8 accounted for 11%.

Examination of year-to-year changes in proficiency yielded some increases. In 2011, 49% of 6th graders scored at a Level 3 or 4, an increase from the prior year’s 44%. A review of peer group results show M.S. 217 fared better than 11 schools in our group for 6th grade progress. A comparison with the city reveals 6th graders at 56%, an increase of 3% from the previous year. Simultaneously, the percentage of students scoring at a Level 1 decreased from 15% to 14% in the one-year period. Those results were consistent across grade level, as grade 7 students achieving a Level 3 or 4 increased from 57% to 60% from 2010 to 2011, while Level 1 percentages remained constant at 8%. The 7th grade progress compared to our peer group revealed M.S. 217 fared better than 20 schools in our peer group. Similarly, 7th grade students citywide increased to 55.5%, from 52.6%. In 8th grade, students scoring Levels 3 or 4 increased to 51% from 48% from 2010 to 2011 with the citywide increase to 52.5%. During the same period, students scoring at a Level 1 decreased from 10% to 8% for M.S. 217.

Most important to note regarding the aforementioned data is the constant changes and realignment of state benchmarks and standards implemented as part of the 2011 NYS Mathematics Assessment make direct year-to-year comparison unreliable. As a result, scale scores, which remained consistent, will be examined for year-to-year purposes so that a more relevant and action-oriented discussion of the data may ensue.

**Year-to-Year Scale Scores**

Overall, scale scores trended upward from 2010 to 2011. Grade 6 mean scale scores increased from 668 to 671. A similar 3 point increase was citywide, currently at 678. Grade 7 mean scale scores also increased 6 points to 678, compared with a 3 point increase citywide to 674. Grade 8 mean scale scores were tallied at 672 in 2011, down approximately 2 points from 2010, compared with citywide mean scale score of 673. Although scale scores trended upward, a closer examination of the subgroup performance will be conducted to assure an equally upward trend. However, once again, it is vital to recognize the impact of state alterations to the testing content as a result of the state-level testing and standard changes aforementioned. These factors must be considered whenever analyzing year-to-year data against 2011 results.

**Scale Scores Comparisons by Ethnicity Subgroups**

*Please note that in the following section, ethnicity was determined by codes selected at the time of registration by parents/guardians. In some cases, the ethnic group title may actually include additional ethnic groups. This may be due in part to confusion on the part of registering students and parents over which ethnic groups choice best represents their backgrounds.*

Upon examination of the scale scores for the ethnicity subgroups, only minor variations are evident. Each grade’s scale scores were examined from the perspective of the following ethnic subgroups (as provided by ATS): Asian/Pacific Islander, White-Not Hispanic, Hispanic, Black-Not Hispanic, American Indian/Alaskan. For the Hispanic subgroup, results appear insignificant. Hispanic students at the 6th and 7th grade levels experienced an increase in scale score of roughly 9 and 5 points, respectively. 8th grade Hispanic students decreased 4 points. Similarly insignificant, the Black-Not Hispanic subgroup scale scores increased 7 points on both grade levels 7 and 8. 6th grade students scale scores decreased 7 points. The White-Not Hispanic subgroup scale scores trended upward approximately 54 and 2 points in grades 6 and 7. However, in grade 8, this subgroup’s scores fell roughly 10 points, greater than the same grade students in the aforementioned subgroups. Similarly anomalous was the 10-point drop seen within the Asian/Pacific Islander subgroup at the 6th-grade level, though 7th grade scores increased 8 points to 689 and 8th grade decreased by 2 points to 682. The least in line with the other subgroups, however, was the American Indian/Alaskan ethnic subgroup, whose scores were split on the year. 6th grade scores decreased 16 points, 7th grade increased by 8 points and 8th grade decreased by 53 points.

Although some anomalies were noted in the ethnic subgroup analysis of data, their randomness makes drawing concrete conclusions difficult, if not impossible. Overall, ethnicity does not appear to have played a significant role in the trend taken by scale scores from 2010 to 2011.

**Scale Scores Comparison by Special Education** **Subgroups**

Scale score trends for grades 6 through 8 Special Education Students were isolated and examined for significance. The data showed trends consistent with that of the whole school environment. In the 6th grade, scale scores increased approximately 6 points in 2011. Special Education Students scores in the 7th grade were up about 3 points and in the 8th grade up 13 points. Noted is the citywide mean change for grades 6 to 8 was an increase of 3.3 points. All grade levels at M.S. 217 met or exceeded this increase.

**Scale Scores Comparison by English Language Learners Subgroups**

Scale score trends for grades 6 through 8 English Language Learners were isolated and examined for significance. The data showed trends consistent with that of the whole school environment. In the 6th grade, scale scores increased approximately 6 points in 2011. English Language Learner scores in the 7th grade were up about 4 points and in the 8th grade lower by about 6 points. Across grade level, these results appear insignificant from a perspective of cause. Noted is the citywide mean change for grades 6 to 8 was an increase of 3.6 points. 6th and 7th grade levels at M.S. 217 exceeded this increase. However, due to our English Language Learner population not meeting AYP, special attention will be given to this subgroup for 2011-2012 academic year.

**Scale Scores Comparison by Gender Subgroups**

Data compiled collectively by gender across grade levels 6 through 8 revealed no significance. Female students in grades 6 through 8 realized scale score increases ranging from 6 to 8 points, on average. Although a scale score decrease of 7 points was observed in the 8th grade. Similarly, male students in grades 6 through 8 had scale score increases of 7 and 2 points in the 7th and 8th grade. However a decrease of 5 points in the 6th grade was observed.

**Scale Scores Comparison by Socio-Economic Subgroups**

Scale score changes from 2010 to 2011 were examined by socio-economic subgroups for significant trending contrary to those trends already seen for the school population as a whole. No such unique trending was found by socio-economic subgroup. Under the classification of Economically Disadvantaged, students in grades 6 through 7 realized increases in scale scores of between 3 and 6 points, while students in the 8th grade fell 2 points.

**Performance by Strand**

The results data for the NYS Mathematics Assessment 2011 was examined by strand to identify areas of weakness.

An analysis of the item numbers sorted by strand was conducted to identify questions that achieved less than 50% correct. Once those items were identified, they were then checked for their placement within a strand. Finally, they were crosschecked to see if they were members of the same strand. This close examination of the item analysis at grade 6 showed 5 question items with below 50% correct within the Number Sense and Operations strand. The same type of examination revealed a 2-item weakness within the Algebra strand in the 7th-grade data, and a 5-item weakness within the Number Sense and Operations strand. At the 8th grade level, items identified as achieving less than 50% correct are Algebra, Number Sense and Operations and Geometry.

**INFERENCES**

Based on the above analysis of the 2011 mathematics proficiency data, the following areas are concluded to be in need of development and thus, are targeted for improvement:

1. Further study of new testing criteria (CCSS).
2. Examination preparation across classes, subgroups and grades 6 through 8.
3. Grade 6 remediation and enrichment within Number Sense and Operations strand, based on NYS assessment.
4. Grade 7 remediation and enrichment within Number Sense and Operations strand, based on NYS assessment.
5. Grade 8 remediation and enrichment within the Geometry, Number Sense and Operations and Algebra Strands, based on NYS assessment.
6. Further exploration and analysis of individual class performance.

**IMPROVEMENT PLAN**

**Target 1 and 2**

***Further study of new testing criteria.***

***Examination preparation across classes and grades 6 through 8.***

1. Department teachers compare and analyze NYS Mathematics Assessment materials for 2010 and 2011 and create target groups in ARIS.
2. Professional development in examination preparation and ARIS for all mathematics department teachers.
3. Aforementioned examination preparation requirement bi-weekly for all mathematics department teachers.
4. Aforementioned examination preparation required as part of classroom environment for all mathematics teachers.

**Target 3 and 4**

***Grade 6 remediation and enrichment within Number Sense and Operations strand, based on NYS assessment.***

***Grade 7 remediation and enrichment within Number Sense and Operations strand, based on NYS assessment.***

**Target 5**

***Grade 8 remediation and enrichment within the Geometry, Number Sense and Operations and Algebra Strands, based on NYS assessment.***

1. Additional instructional professional development in aforementioned areas for grades 6 and 7 teachers.
2. Additional usage of pre-, medial, and post- assessments in affected strand areas.

**Target 6**

***Further exploration and analysis of individual class performance.***

1. Mathematics teachers will conduct similar microanalysis of NYS Mathematics Assessment results for their own classrooms when data becomes available.
2. Mathematics teachers will present microanalyses to department.
3. Mathematics teachers will develop applicable micro-improvement plan.
4. Monthly administrator/teacher conference regarding progress within micro-improvement plan.